

WHAT IS CLAIMED IS:

1. An isolated polynucleotide encoding for Cathepsin O, said polynucleotide selected from the group consisting of
  - (a) a polynucleotide encoding for the Cathepsin O polypeptide having the deduced amino acid sequence of FIG. 1 or a fragment, analog or derivative of said polypeptide; and
  - (b) a polynucleotide encoding for the Cathepsin O polypeptide having the amino acid sequence encoded by the cDNA contained in ATCC Deposit No. 75671 or a fragment, analog or derivative of said polypeptide.
2. The polynucleotide of claim 1 wherein the polynucleotide is DNA.
3. The polynucleotide of claim 1 wherein the polynucleotide is RNA.
4. The polynucleotide of claim 1 wherein the polynucleotide is genomic DNA.
5. The polynucleotide of claim 2 wherein said polynucleotide encodes for Cathepsin O having the deduced amino acid sequence of FIG. 1.
6. The polynucleotide of claim 2 wherein said polynucleotide encodes for the Cathepsin O polypeptide encoded by the cDNA of ATCC Deposit No. 75671.
7. The polynucleotide of claim 1 having the coding sequence for Cathepsin O as shown in FIG. 1.
8. The polynucleotide of claim 2 having the coding sequence for Cathepsin O deposited as ATCC Deposit No. 75671.
9. A vector containing the DNA of claim 2.
10. A host cell genetically engineered with the vector of claim 9.

11. A process for producing a polypeptide comprising: expressing from the host cell of claim 10 the polypeptide encoded by said DNA.
12. A process for producing cells capable of expressing a polypeptide comprising genetically engineering cells with the vector of claim 9.
13. An isolated DNA hybridizable to the DNA of claim 2 and encoding a polypeptide having Cathepsin O activity.
14. A polypeptide selected from the group consisting of (i) a Cathepsin O polypeptide having the deduced amino acid sequence of FIG. 1 and fragments, analogs and derivatives thereof and (ii) a Cathepsin O polypeptide encoded by the cDNA of ATCC Deposit No. 75671 and fragments, analogs and derivatives of said polypeptide.
15. The polypeptide of claim 14 wherein the polypeptide is Cathepsin O having the deduced amino acid sequence of FIG. 1.
16. An antibody against the polypeptide of claim 14.
17. An antagonist/inhibitor against the polypeptide of claim 14.
18. A method for the treatment of a patient having need to inhibit Cathepsin O comprising: administering to the patient a therapeutically effective amount of an antagonist against the polypeptide of claim 14.
19. A pharmaceutical composition comprising the polypeptide of claim 14 and a pharmaceutically acceptable carrier.
20. A method for the treatment of a patient having need to inhibit Cathepsin O comprising: administering to the patient a therapeutically effective amount of an antisense construct against the DNA or RNA which encodes for Cathepsin O such that transcription and translation into Cathepsin O is inhibited.

21. A method for the treatment of a patient having need to inhibit Cathepsin O comprising: administering to the patient a therapeutically effective amount of the antibody of claim 16.
22. A method for the treatment of a patient having need to inhibit Cathepsin O comprising: administering to the patient a therapeutically effective amount of the antagonist/inhibitor of claim 17.
23. A method for identifying inhibitors of Cathepsin O comprising: combining a potential inhibitor of the Cathepsin O polypeptide with peptide-based substrate of the formula X-(Y).sub.n-Z, wherein (i) X is an amino protecting group; (ii) Y is any naturally or non-naturally occurring amino acid; (iii) n is any whole integer; and (iv) Z is any chromogenic or fluorogenic tag; allowing an effective amount of time for the Cathepsin O to cleave the Y amino acid group; passing the peptide-based substrate through a fluorimeter, if a fluorogenic tag is used or a spectrophotometer, if a chromogenic tag is used; and detecting the production of fluorescence or color released by Z.
24. The method of claim 21, wherein said patient has cancer.
25. A method of detecting Cathepsin O protein in a biological sample comprising:
- (a) contacting the biological sample with the antibody of claim 16; and
  - (b) detecting the Cathepsin O protein in the biological sample.